THE COVEY HEADQUARTERS

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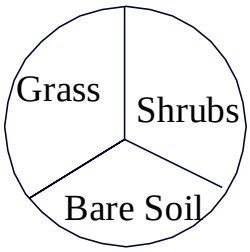
This newsletter is aimed at cooperators and sports-people in Missouri to provide information on restoring quail. This is a joint effort of the Missouri Department of Conservation, USDA-Natural Resources Conservation Service, and University of Missouri Extension. If you would like to be removed from this mailing list or have suggestions for future articles please contact jeff.powelson@mdc.mo.gov or 816-232-6555 x122 or write to the address shown.



The name of this newsletter is taken from an old concept.....that a quail covey operates from a headquarters (shrubby cover). If the rest of the covey's habitat needs are nearby, a covey should be present. We are encouraging landowners to manage their quail habitat according to this concept. Use **shrubs** as the cornerstone for your quail management efforts. Manage for a **diverse grass, broadleaf weed and legume mixture and provide bare ground** with row crops, food plots or light disking **right next to** the shrubby area.

SW Missouri Quail Study Reveals Early Spring is a Dangerous Time for Quail

Kyle Hedges, Wildlife Management Biologist

The start of the 2016 research season has been difficult to say the least. Mild weather in February made trapping quail extremely difficult, resulting in the lowest number of radio collared birds on the air since this project began three years ago. Most years we have had some cold temperatures and snow to help entice coveys into bait sites. This year techs were challenged with 70 degree temps and quail with light appetites. Despite the tough conditions, 3 of the 5 sites managed to get over 50 birds on the air (our annual goal is 60 birds collared per site).

As if it wasn't enough to deal with tough trapping conditions, we seemed to face an excessive amount of mortalities in March and April. As the continued reports of predation events arrived from our technicians, it caused me to start crunching some numbers. I looked at mortalities that occurred between March 1 and April 15 over the last two years. I only evaluated predation events, and excluded other causes of mortality, such as vehicle collision or birds killed in a trap. The quail technicians attempt to ascertain whether each mortality was caused by a raptor

or mammal. Sometimes this is fairly obvious, but other times very difficult. Many other studies have also found that assigning the blame can be a struggle. With this in mind, I am only calling the mortalities a predation event, and not attempting to blame one group of animals over another. After evaluating the deaths, it confirmed that indeed, on most sites we were suffering a higher rate of mortalities during this month and a half period.

Figure 1: Percent of radio collared quail predated between March 1-April 15

Study Site	% of Birds Predated 2015	% of Birds Predated 2016
Shawnee	25%	34%
Talbot	21%	35%
Stony Point Prairie	11%	38%
Shelton Prairie	39%	35%
WKT Prairie	24%	24%

Clearly we suffered higher loss rates on 3 of the 5 sites when compared to this same time period last year. So far, there doesn't seem to be any pattern suggesting it is safer to live on grasslands or traditionally managed sites, at least during early spring. Stony Point had incredible survival in early spring of 2015, but had the worst survival for 2016. The worst part about these predation events is the timing. These quail have made it through fall and winter, only to be lost within a month or two of nesting season starting.

There are numerous factors that make early spring a difficult time to be a quail. In early March, food is at an all-time low for the year. Green-up has yet to occur, and seeds have been eaten by every bird and rodent for the entire fall and winter. All of March is raptor migration season. Our quail find themselves dodging aerial attacks on a regular basis. And the mammalian predators also have found their food supply to be lowest all year. Songbird nests haven't hatched, rabbit and rodent nesting is just underway, so the mammals don't have an easy food source. Perhaps they try a little harder to catch quail. In hindsight, it is easy to see why quail mortalities spike in March and April. However, none of us would have ever predicted losses of 1/3 of the adult population! Let's hope the nesting season goes well, as we need as many new quail as we can get to prepare for next spring's deadly times.

Managing "Odd" Areas for Big Benefits - Part 1 of 3: Roadsides

David Hoover, Small Game Coordinator

This is the first in a series of 3 articles addressing ways in which managing "odd" areas on and around your property can yield productive wildlife habitat and compliment other habitat management efforts. The topic in this issue is roadsides. Roadsides have much potential to provide quality wildlife habitat, but they must be managed properly. Roadside acres include those areas along major interstate highways as well as the narrower right-of-ways along gravel and minimum maintenance roads. The recommendations for managing roadsides, for the purposes of this article, pertain primarily to gravel and minimum maintenance roads. Check with your local township prior to doing any management yourself.

Roadsides as Habitat

As I drive around this time of year, particularly along our State's gravel roads, I can't help but notice the potential wildlife habitat provided by roadside vegetation. Nationally, roadsides cover more than 10 million acres of land. Consider the miles you drive in a given week and how many of those miles are bordered by 30 to 100 feet or more of roadside vegetation, and you can begin to understand why there is an ever increasing effort to manage our roadsides for wildlife.

Depending upon the width of the roadside and the structure and composition of the vegetation, roadsides can provide habitat for multiple species of wildlife. In fact, in areas with a high percentage of the land devoted to crop production, roadside vegetation may provide most, if not all, of the available nesting habitat for several bird species, including quail and pheasants.

Roadsides dominated by native grasses and wildflowers can be important habitat for pollinators (bees and butterflies to name just a few), by providing foraging habitat, breeding and nesting sites and connecting fragmented habitats, thus creating a corridor of habitat allowing pollinators to move through the landscape. Why is this important, you ask? Well, researchers in 2007 estimated 60 to 80 percent of the world's flowering plants depend mostly on insects for pollination and approximately a third of the world's crop production is pollinated by animals – mostly insects. Insects are also the primary pollinators of native plants which provide habitat and food for a variety of other wildlife.

Roadsides dominated by native grasses and wildflowers provide better habitat for wildlife (particularly pollinators and ground nesting birds) than those dominated by cool-season grasses such as tall fescue. In addition, the extensive root systems of native vegetation provide excellent soil holding capabilities.

<u>Roadside Management</u>

The management of roadside vegetation is critically important to consider if any wildlife benefits are to be achieved. For instance, mowing roadsides during the nesting season will render them useless to nesting birds and spraying to eliminate broadleaved plants will provide little benefit to pollinating insects. There are certainly reasons to mow and/or apply herbicides to roadside vegetation (as described below), but the judicious application of these practices is the key.

There are many forces that govern the management of roadside vegetation. Motorist safety is the primary factor, but invasive species control and soil erosion are other important factors in their management. The mowing of roadsides, particularly along major highways, is done to ensure clear visibility for motorists. Fortunately the right-of-way along these major roadways is considerably wider than the 30 feet or so that is frequently mowed. The remaining undisturbed portion, if managed properly, can provide quality habitat for wildlife as well as provide a pleasing aesthetic experience for the motorists (especially if established to native grasses and wildflowers). As you move to secondary and smaller roadways in the state, the right-of-ways are narrower. Mowing these roadsides at the wrong time of year virtually eliminates all habitat for wildlife and encourages tall fescue invasion. Likewise, indiscriminant spraying of roadsides for "blanket" control of broadleaved plants can eliminate any potential benefit to pollinating insects.

So how can you improve roadside habitat for wildlife? In general, if they must be mowed, mow as little as possible and avoid the primary nesting season, May 1 to at least July 15. Avoid "blanket" spraying for broad-leaved plants, as this kills the beneficial plants as well. Milkweeds (critical for Monarch butterfly reproduction) are common casualties to "blanket" spraying practices. Spot spray herbicides only if there is a noxious weed or invasive species problem. More specifically, if the roadside is dominated by tall fescue, converting it to a more diverse native plant community and following the recommendations listed above would be best. Many roadsides along rural gravel roads across the state still contain some native plants (they are just being smothered by the more aggressive tall fescue, and in some cases, invasive

species). In this case, timely mowing and selective herbicide application can encourage the native plants to increase, thus improving habitat.

There is no perfect way to manage roadside vegetation, particularly given the multiple management challenges and public expectations for these areas. However, with careful planning, explicit goals and a strong desire to succeed, roadsides can provide quality wildlife habitat and meet other public expectations.

MDC offers private landowners payment for public use of land

The Missouri Department of Conservation (MDC) is offering a new program to increase public access to private lands for hunting, fishing, and wildlife viewing. The Missouri Outdoor Recreational Access Program (MRAP) provides incentive payments to private landowners who volunteer to open their properties to the public for these types of outdoor activities. Additional incentives are also available to enhance wildlife habitat on enrolled lands. The program will focus mostly on enrolling lands in northern Missouri where public access opportunities are generally more limited.

Landowners can apply for MRAP starting June 1 until July 15. Approved landowners will be notified in August with enrolled lands becoming open for public use this fall.

Offered lands must meet eligibility requirements such as being at least 40 contiguous acres or at least a one-acre pond for fishing access. Land must also contain minimum amounts of quality wildlife habitat such as native grass fields, crop-field buffers, restored wetlands, or managed woodlands.

Thanks to grant funding through the USDA Voluntary Public Access and Habitat Incentive Program, the Department plans to enroll up to 10,000 acres statewide with emphasis on north Missouri. Tracts near major urban centers will also be targeted, as well as lands with abundant wildlife habitat.

Applying landowners may select one of six public-access options: All Access Hunting and Fishing, Small Game and Turkey Hunting, Youth Only Hunting and Fishing, Archery Hunting, Fishing Only, or Wildlife Viewing.

MRAP lands are open to foot traffic only and area users self-register at designated property entry points. Parking typically occurs along roadsides. Public access is only for types of use agreed upon by the landowner and posted at entry points. Participating landowners are offered liability protection under Missouri's Recreational Use Immunity Law.

Annual payment rates will be determined by the access type selected by the landowner, amount of quality habitat available, committed participation length, and other factors. Most landowners will likely earn $15-$25 per acre each year they participate. Payment rates for fishing-only access will be on an adjusted scale and will be based largely on impoundment size or stream length.

For more information and an MRAP application, visit mdc.mo.gov/mrap or contact local MDC staff. Find local MDC staff at mdc.mo.gov under LOCAL CONTACT.

Mark Your Calendar

Prescribed Fire Workshops – August 11, 2016, From 1PM-4:30PM OR 6PM-9:30PM at the Mineral Area College, 5270 Flat River Road Park Hills, MO 63601 Arts and Science Building, Rice Lecture Hall B. To register for one of the workshops please contact the Missouri Department of Conservation at 573/290-5730

Greater Prairie - Chicken Relocation Project

Claire Nellis, MDC Wildlife Resource Hourly Technician

The Missouri Department of Conservation (MDC) is in the fourth year of a five year reintroduction and translocation project of Greater Prairie - Chickens from Nebraska to the Grand River Grasslands (Figure 1). This year 100 Greater-Prairie Chickens were trapped during the last weeks of March and first eight days of April, 2016 by multiple MDC employees. Sixty chickens were released in north western Missouri at The Nature Conservancy's (TNC) Dunn Ranch Prairie in equal sex ratios with all 30 of the hens being radio-collared. The other 40 chickens were released in south western Iowa also in equal sex ratios, none collared. The chickens arrived from Nebraska and were released in good condition with the exception of one male. Despite important regulations to insure leks were not over trapped, the effort in Nebraska came to a successful close about a week earlier than expected.

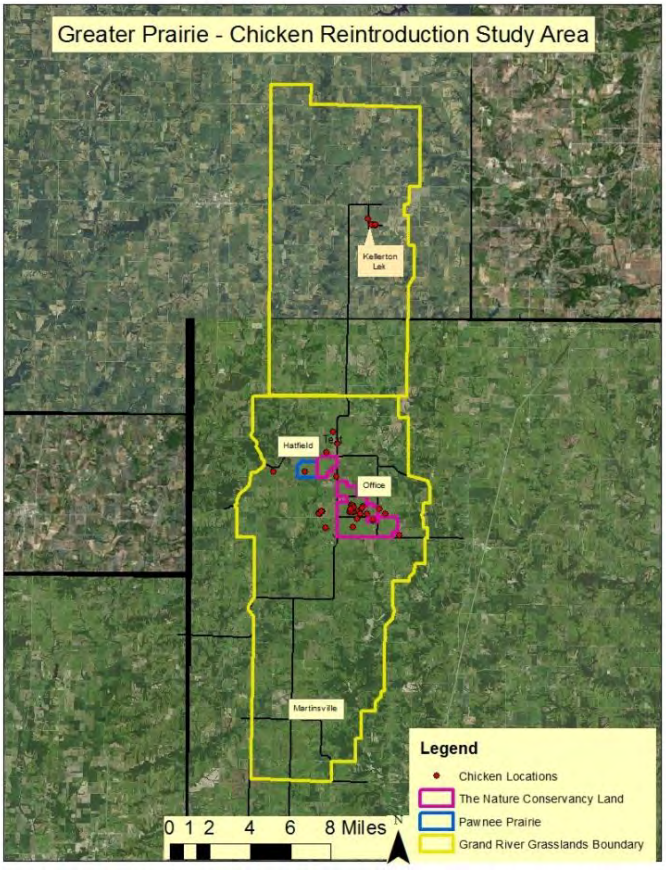


Figure 1. Map of study area for the reintroduction of Greater Prairie-Chickens. Birds were released a half mile south west of the Dunn Ranch Office in Missouri and at the Kellerton Lek in Iowa. Chicken locations represent all locations of birds from release up to the end of May, not including the bird found near Lamoni, located during the flight.

Once all the birds were released and I received all the radio frequencies for the 30 hens, I began regularly tracking their movements. During the first week I was also learning the ins and outs of radio – telemetry and determining the protocol for this season's monitoring effort. The majority of the birds were on Dunn Ranch with the exception of five birds that I have never been able to hear a signal from. However, this quickly changed. While there were often about 20 chickens on the main lek and an additional five to eight chickens on a secondary lek at Dunn Ranch, only four were collared and being regularly monitored on or near the release site. An additional 12 birds were irregularly being heard alive near the area until the end of April when they seemed to permanently move on.

On the 15th of April I heard my first mortality signal. I located the hen's radio collar in a cow pasture less than a mile from Dunn Ranch with feathers plucked and also in a nearby fence. This hen presumably flew into the fence and was then scavenged by raptors. In the following weeks there have been six additional confirmed mortalities.

One from a vehicle collision, two with unknown causes due to a complete lack of evidence; which may suggest the hen managed to slip the collar off, two killed by mammals and one killed by a raptor. The cause of death is determined by mostly qualitative measures based on the

appearance of the feathers and the transmitter (Figure 2). Any remains found are bagged and frozen for later genetic analysis by another researcher.

Figure 2. (A)The transmitter and feathers pictured above were collected from the mortality of hen found in a cow pasture that was most likely depredated by a raptor. The feather shafts are intact indicating they were plucked out with a beak rather than sheared off by teeth. (B) The feathers pictured in the second frame were collected from the mortality of a hen also found in a cow pasture but was most likely depredated by a mammal. The feathers appear to be sheared off and were clumped together and appeared to have dried saliva on them. (C) The transmitter pictured was collected from the same kill site as B and has extensive chewing and is cracked, presumably from teeth biting down as well as mice scavenging. There is a strong contrast between this transmitter and that found in picture A demonstrating the difference between raptor- and mammal-caused mortality sites.

Five nests have been confirmed with an additional hen presumed nesting on private property. The translocated hens began incubating their nests between the fifth and twenty-sixth day of May. The number of eggs range from 12 to 14 with an incubation period of 23 days. While prairie chickens have been documented laying up to 23 eggs in captivity, 12 eggs is an average clutch size for wild populations (Johnson et al. 2011). Incubating hens are located on the nest and often flush off allowing an egg count. Then a monitoring point is set up between 50 and 100 meters away from the nest where I can pick up their signal on a specific azimuth which allows me to determine whether or not the hen is still on the nest. If she is detected off the nest I return to the nest site to determine the fate of the nest. Two nests have been depredated and found in a similar state with the eggs shells crushed in on one side (Figure 3). The remaining 3 nests that I am able to accurately monitor are still successfully incubating with the first expected to hatch around the tenth of June and the last on the 18th.

Figure 3. (A) Hen nesting on Dunn Ranch, incubating 14 eggs. (B) Depredated nest, nest lining is disturbed and all eggs were crushed, some eggs are over turned and damage is not visible in the picture.

This year there have been fairly low numbers of birds staying within the study area. My protocol was to obtain three locations of each hen per week. Since collecting this data for four to six hens does not take very long I was spending an additional day or the remainder of the day searching the nearby areas for Prairie-Chickens. Historic locations include multiple private land owners within a five mile radius of Hatfield and Martinsville as well as areas in the southern portion of Ringgold County, Iowa. The department scheduled a helicopter flight in hopes to locate more birds that might be nesting and to determine the fate of others as well as their dispersal distance. The flight took place on May 31st. We focused on areas around Dunn Ranch and then scanned over the rest of the Grand River Grasslands. A single bird was located two miles southwest of Lamoni, Iowa. The current focus is on tracking the 4 birds that are on the air and still incubating their eggs. Soon they will be hatching and I will begin determining how many chicks the hens are successfully raising.

References:

Johnson, Jeff A., M. A. Schroeder and L. A. Robb. 2011. Greater Prairie-Chicken (*Tympanuchus cupido*), The Birds of North America Online (A. Poole, Ed.). Ithaca: Cornell Lab of Ornithology; Retrieved from the Birds of North America Online: http://library.paulsmiths.edu:2094/bna/species/036doi:10.2173/bna.36

Is it true that turkeys eat baby quail?

A single Florida study from the 1930's noted an instance of turkeys destroying quail eggs. No biological study since has documented turkeys damaging quail nests or feeding on chicks. Turkey researchers have not found a single quail chick or egg fragment while examining thousands of turkey stomachs. In addition, scientists monitoring quail chicks fitted with radio transmitters and watching quail nests via remote cameras have yet to catch a turkey in the act. Given that literally hundreds of studies of wild turkey food habits and predation on quail have been conducted over the past 80 years, the lack of evidence is remarkable. The logical conclusion is that although it may occasionally happen, turkey depredation on quail is exceedingly rare, and that turkeys have no direct role in the decline of quail.

Among the changes that have hurt quail, one that relates to turkeys is the increase in wooded land. Missouri has gained nearly 2.5 million acres of wooded land since the early 1970s. These new wooded lands are generally not large stands of healthy, mixed forest that provide valuable wood products or homes to forest interior songbirds. Much of this increase is comprised by small stands of less desirable trees such as cedar, Siberian elm or locusts that have encroached into once-open areas. Along with this

expansion of wooded cover, turkeys have colonized parts of the state that were formerly bobwhite strongholds, particularly in the traditional prairie landscapes of western and northern Missouri.

Turkeys and quail share some habitat needs, such as grass for nesting, weedy areas for feeding and row crops and acorns for winter food. However, the trees that turkeys require for roosting can spell trouble for quail. Quail need low-growing tangles of brush and briars for protection from predators and the elements. Tall trees shade out this beneficial woody cover over time and provide strike points for predatory hawks and owls.

Summer Covey Headquarter Calendar

June
Quail hatch begins and continues through September
Contact NRCS or MDC for burn plan assistance this month
Conduct breeding bird surveys this month
Mow newly planted native grass fields to a height of 6-8 inches to control weed competition
Spray actively growing Johnsongrass

July
Excessive June and July rains can shift peak quail hatching to August
Quail are nesting
Mow newly planted native grass fields to a height of 8-12 inches to control weed competition

August
Quail are still nesting, only mow for weed control in newly planted native grass fields
Continue to treat serecia lespedeza through September
Prepare firebreaks for fall prescribed burns

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